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Department of Mechanical Engineering, Magna College of Engineering, Chennai-600055, India.

# Design of Self Recharging Vehicle

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**ABSTRACT:** In general the cars run with fuel or the battery. Gasoline which has been the main source of fuel for the history of cars is becoming more and more expensive and impractical. These factors are leading car manufacturers to develop cars fueled by alternative energies. So we need alternate fuel or to minimize the fuel used in the vehicle. And the batteries are charged manually and should not possible for long driving. So we used like hybrid vehicle which runs in gasoline also the batteries.

So we design the new model which is run in the battery. This project is developed for the users to use a vehicle using wind energy. A wind mill generates electric power from wind energy. The electric power is stored in a battery. The car gets energy from the battery. Only one battery cannot be run the car continually so we put the two additional batteries which are charged when the vehicle in running condition. The batteries are charged fully in initial condition.
This vehicle should not have any exhaust so its eco friendly. And the batteries are charged when the vehicle in running condition. These vehicles need not any fuel or external energy it only required the wind energy. The cost of the vehicle is effective and portable.

## I. INTRODUCTION

The wind energy source is the one of the renewable energy source. In this paper the wind energy (kinetic energy) used to run the car. It can overcome the demand of fuel and electric power. The dynamos and dc motors and batteries are run the vehicle. It needs not any external source like fuel or electric current.

***Parts Description:***

- Wind mill
- Battery
- Rotating blades
- Gear and wheel setup
- Coil and permanent magnet
- Dc to dc converter

## II. WORKING PRINCIPLE

According to Faraday's law, "As long as there is a change in magnetic flux linked with the coil, an EMF is induced." So, in each and every rotation, electricity is generated. The energy from the windmill is stored in a battery. The car gets energy from the battery. The battery runs the motor and the motor are connected with gear box and perpetual shaft to run the vehicle.

## III. PLACING AND WORKING OF PARTS

***Wind Wings & Dynamo (Or) Dc Generators:***

The wind wings shown in Fig1 are placed in the in front of the car. If the vehicle will move the opposite air force (kinetic energy) will rotate the wind wings the wing are connected to the shaft which is connected to the dynamo. The dynamo shown in Fig 2 when rotates the electric current be produced and it's stored in the battery. The generator is shown in fig 3

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**Fig 1: Wind wings**

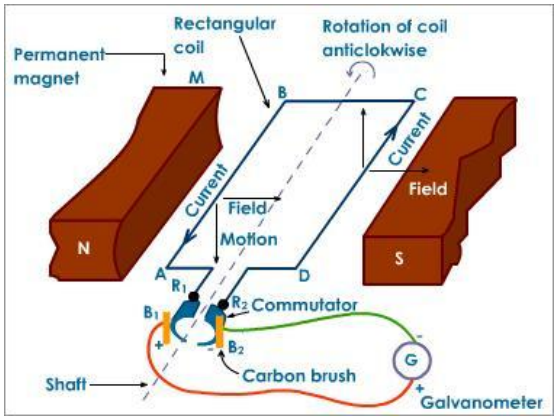


**Fig 2: Dynamos**

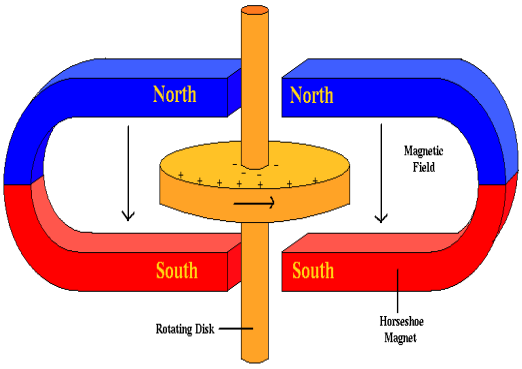


**Figure 3: Generator**

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***Batteries:***

The setup of generator is shown in Fig 3. Here we have used three batteries. One main battery and two sub batteries. The power produced from the dynamo which is connected to the wind wings is stored in the main battery. The sub batteries are placed nearer to the perpetual shaft these batteries are charged when the perpetual shaft will rotate by using dynamo. These sub batteries are used to run the vehicle continuously. When the main battery will discharged the sub batteries will charge the main battery so the vehicle will run without stop.

## IV. WORKING OF THE VEHICLE

The setup of battery is shown Figure 4. Initially the batteries (one main battery + two sub batteries) are charged fully by manually. The main battery starts the dc motor it will rotates the gear assembly as well as the perpetual shaft. The perpetual shaft rotates the grown assembly it rotates the rear wheels then the vehicle will move.

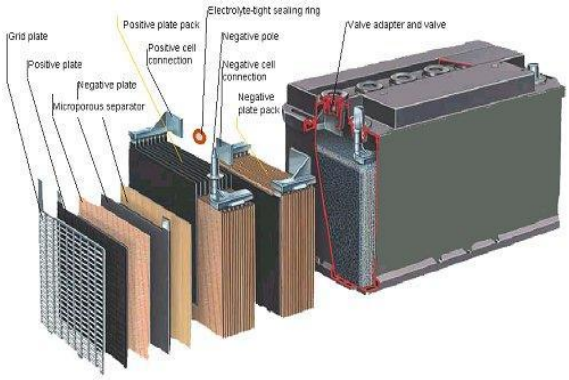


**Figure 4: Battery**

When the vehicle moving the opposing air force (kinetic

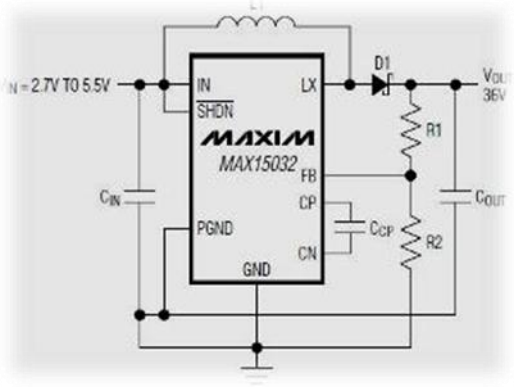


**Figure 5: Step up converter**

energy) rotating the wind wings then the dynamo will be rotates. Therefore the electric current will produced. It is boosted by dc to dc converter. The boost up current stored in the main battery. When the perpetual shaft rotates it will rotates the bevel gear assembly which connected to dynamo it will charge the sub batteries. If the car in continuous motion the main battery discharged shortly that time the sub batteries are charging the main battery then the car will be run continuously

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***Step Up Dc To Dc Convertor:***

The power produced from the dynamo is small. So we have used dc to dc convertor which is used to boost up the voltage and stored in the batteries. The Fig 5 shows the step up dc to dc converter circuit and the step up convertor.

***DC Motor***

The dc motor runs with the help of the three batteries. It will used to convert the electrical energy into mechanical energy. And it will connect with the gear box and perpetual shaft to run the car. The Fig 5 shows the vehicle dc motor. We have used 3000 rpm dc motor for high speed

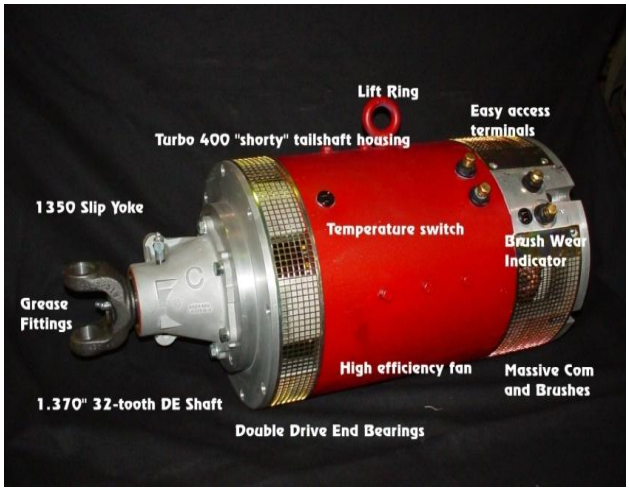


**Figure 6: D.C Motor**

***Merits:***

- Spending money for fuel is neglected. Life time of the batteries is much better.
- Maintenance of the vehicle is less.
- Air pollution can be controlled.
- Energy source for the vehicle is not needed.
- Additional batteries are used in car, which run the vehicle without stop.
- Recharging the vehicle first time only.
- The extra energy can be used for house hold using.
- The weight of the vehicle is reduced.
- Cost of the vehicle may be less.
- When using high torque motor the speed of the vehicle increased.
- Its resembles as a normal vehicle

***Arrangement of the car***

In chassis model the wind wings are placed at the front of the vehicle. The shaft taken from the wind wings is meshed with dynamo by using bevel gear. The dynamo is connected to the dc to dc converter and it's connected to the battery which runs the car.

The battery connected to the dc motor. The dc motor connected with gear box assembly which is connected with perpetual shaft. The perpetual shaft connected with grown assembly. In the middle of the perpetual shaft the bevel gear

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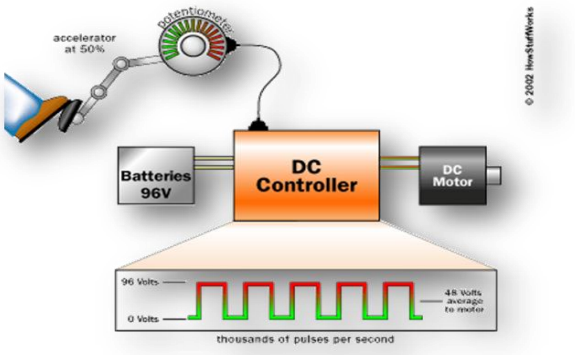
assembly is fixed for rotating the additional dynamos. These dynamos are connected to the sub battery and the sub battery is connected to the main battery which is placed in front of the vehicle

**Working of the vehicle**

Initially the batteries (one main battery + two sub batteries) are charged fully by manually. The main battery starts the dc motor it will rotates the gear assembly as well as the perpetual shaft. The perpetual shaft rotates the grown assembly it rotates the rear wheels then the vehicle will move. When the vehicle moving the opposing air force rotating the wind




**Merits**

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- The weight of the vehicle is reduced.
- Cost of the vehicle may be less.
- When using high torque motor the speed of the vehicle increased.

## V. CONCLUSION

In this model the vehicle run without any fuel. It does not have any exhaust. Therefore it is eco friendly also. Its need not any external power. The batteries are charged at initial time only. So this vehicle also called as self recharging vehicle….

## REFERENCES

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